

**10/549459****Electric motor and/or transmission**

The present invention relates to an electric motor and/or a transmission having an input drive shaft and an output drive shaft, and having a housing on which a centering flange and/or an attachment flange are/is provided.

Transmissions such as these are known and available in a very wide range of forms and embodiments on the market. They are used essentially for stepping up or down an input drive movement of a motor, electric motor or some other drive. Conventional known electric motors and/or transmissions have the disadvantage that it is difficult to determine their life, their need for maintenance or the maintenance intervals. Furthermore, the life is greatly reduced, for example, in the event of overloading, which is likewise undesirable.

Since no capability to determine the life as well as the operability and load capacity of the electric motor and/or transmission is often known, it is also not possible to influence the spare parts storage, so that a large number of spare parts must be kept in stock, which in turn results in undesirable stock keeping costs.

US 4,384,493 discloses an electric motor which has a centering flange, in which case a housing of the

electric motor is rotationally decoupled from the centering flange via a plurality of bearing elements. A force measurement cell is arranged between the housing and the centering flange.

US 5,763,969 discloses an indicating display for an electric motor for driving a flywheel for ventilation, in which case the indicating display has a rotation speed indication in order to indicate the individual revolutions per minute.

US 6,066,907 describes an electric motor having an input drive shaft and a housing, on which a centering flange is provided.

The present invention is based on the object of overcoming the disadvantages mentioned above and of providing an electric motor and/or transmission by means of which functional monitoring is possible for specific loads and uses, for example of forces, moments, temperature, leaks, maintenance intervals etc. A further aim is to allow faster and more reliable assembly and maintenance, with higher availability and productivity and a longer usage capability. A further aim is to make it possible to reduce the spare parts stockholdings. Furthermore, clarification of faults in use should likewise be possible.

The features of patent claims 1 and 2 lead to  
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the achievement of this object.

With regard to the present invention, it has been found to be particularly advantageous for the housing of an electric motor and/or transmission to have at least one associated strain sensor, preferably in the form of a strain gauge. It has been found to be preferable for the strain sensor to be provided or arranged close to a centering flange in the cylindrical part of the housing. A plurality of strain sensors which are distributed radially around the circumference are preferably provided, and provide information about the actual forces and torques that are acting.

In this case, the intention is, for example, for an alarm signal to be switched or to be indicated